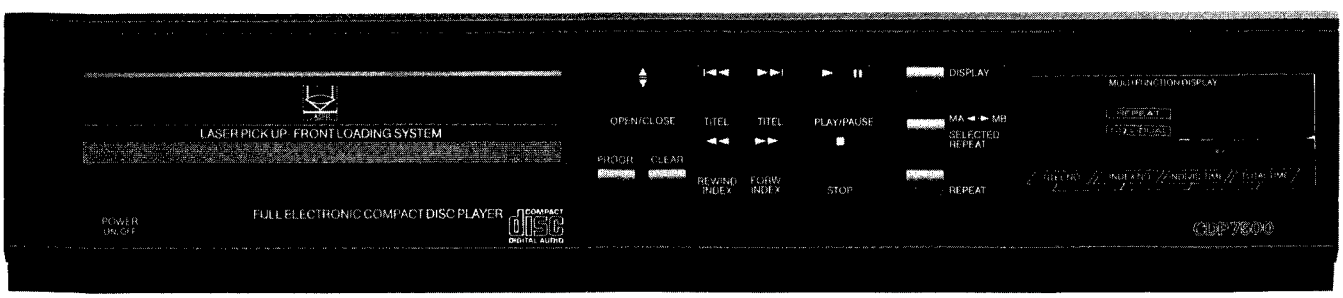
Serviceanweisung
Service manual
Compact Disc Player
»CDA 30«

Ident-Nr. 32 809 00

CDP 7400
CDP 7500
CDP 7600

MC-Service



Vorsicht! Das Gerät beinhaltet eine Laserkomponente!

Im Servicefall nachfolgende Hinweise unbedingt beachten.

- Das Gerät arbeitet mit unsichtbarem Laserstrahl.
  Bei geöffnetem Gerät tritt im Bereich des Plattenfaches Laserstrahlung aus.
- Nicht in den Laserstrahl blicken.
- Laserschutzbrille nach DIN 58215 für die angegebene Wellenlänge tragen.
- Unbeteiligte Personen vom Arbeitsplatz fernhalten.

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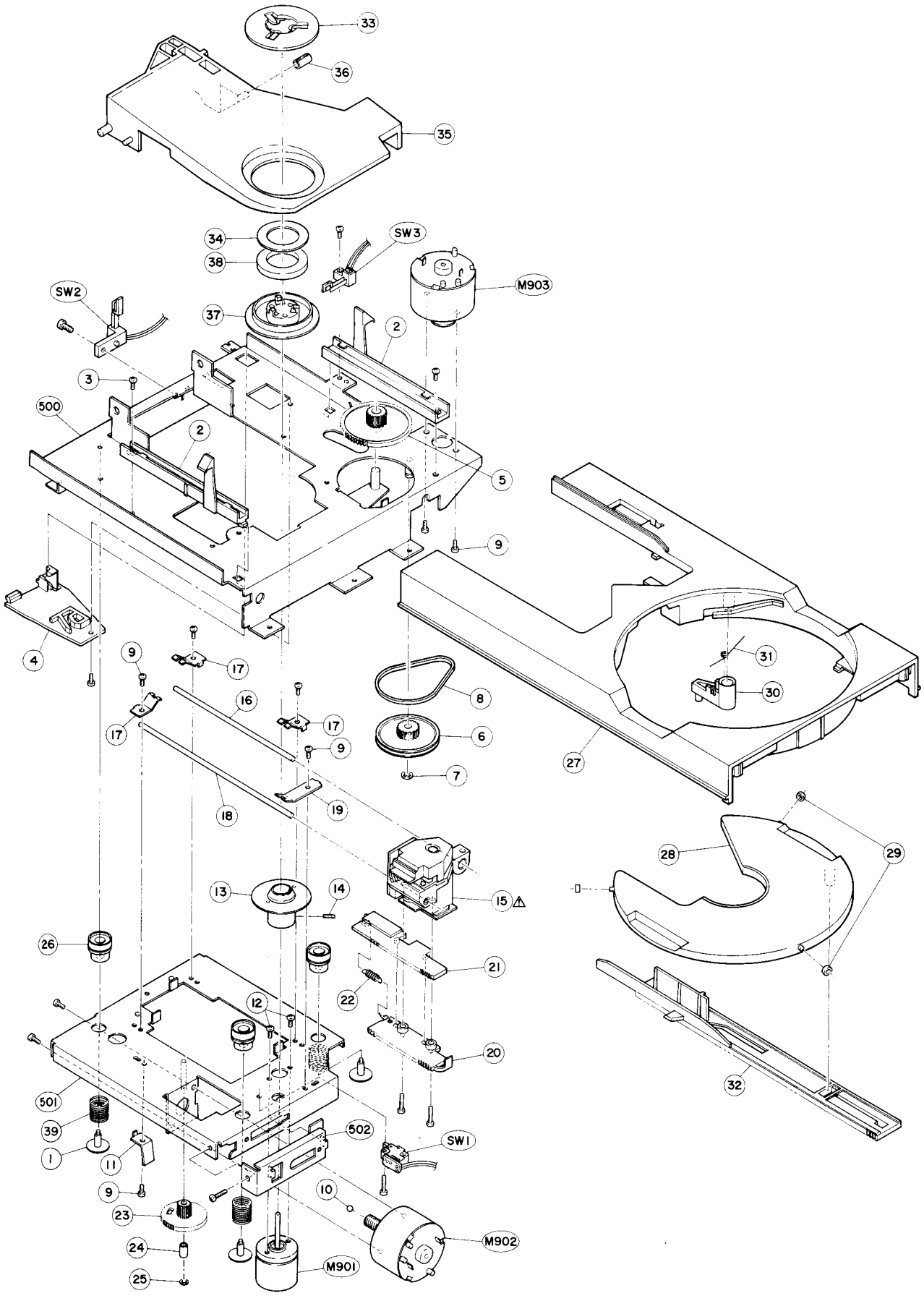
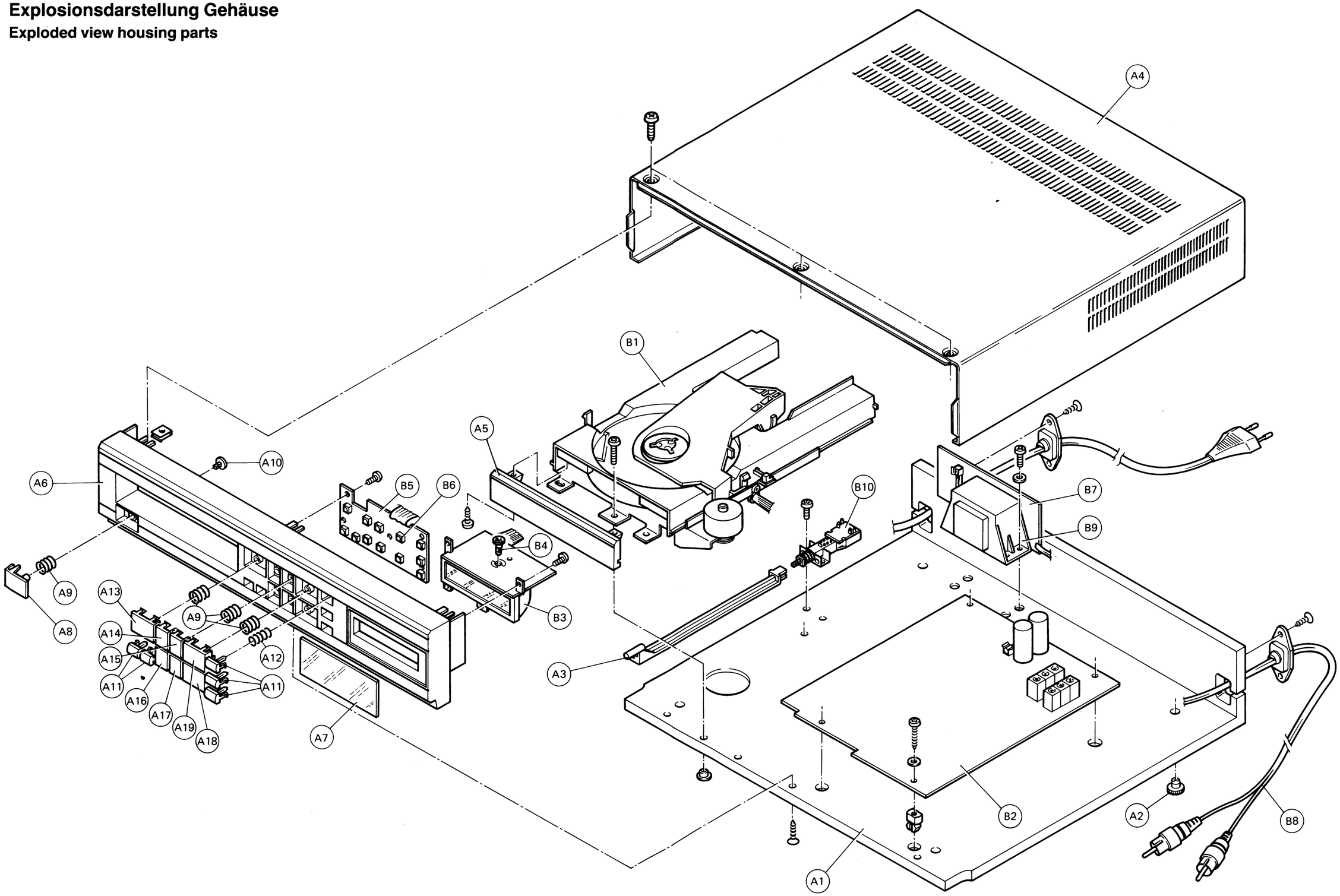
Bestell-Nr./Part No.	Bezeichnung	Description	Pos.-Nr./Ref. No.
27 353 00–501	Mechanik kpl.	Mechanic block assembly	B 1
32 601 00-49750	Spezialschraube	Screw	1
32 602 00-49750	Führungsschiene, Schlitten	Holder rail	2
32 603 00-49750	Anschlagplatte	Stopper tray	4
32 604 00-49750	Zahnrad, Schlitten	Gear loading	5
32 605 00-49750	Riemenscheibe	Pulley gear	6
32 606 00-49750	Riemen, Schlitten	Belt loading	8
32 607 00-49750	Kugel	Ball	10
32 608 00-49750	Laserabtaster	Pick up KSS-121B	15
32 609 00-49750	Gleitstange rechts	Shaft sub	16
32 610 00-49750	Haltewinkel A	Holder shaft A	17
32 611 00-49750	Gleitstange links	Shaft B	18
32 612 00-49750	Haltewinkel B	Holder shaft B	19
32 613 00-49750	Zahnplatte A	Gear pick up A	20
32 614 00-49750	Zahnplatte B	Gear pick up B	21
32 615 00-49750	Feder Zahnplatte	Spring	22
32 616 00-49750	Zahnrad, Laserantrieb	Gear wheel A	23
32 617 00-49750	Gummipfropfen	Cushion rubber B	26
32 618 00-49750	Schlitten, Disc	Cover disc tray	27
32 619 00-49750	Halteplatte	Holder disc	28
32 620 00-49750	Gleitrolle	Roller	29
32 621 00-49750	Anschlagrasthebel	Lever lock	30
32 622 00-49750	Feder Rasthebel	SP torsion lever	31
32 623 00-49750	Zahnradschiene, Schlitten	Gear rack	32
32 624 00-49750	Gegenzentrierscheibe	Cap clamp	33
32 625 00-49750	Ring	Plate	34
32 626 00-49750	Niederhalter	Holder clamper	35
32 627 00-49750	Zentrierscheibe	Clamper	37
32 628 00-49750	Magnetring	Magnet	38
32 629 00-49750	Motor, Disc mit Antriebsscheibe	Spindle motor with turn table	M 901 + 13
32 630 00-49750	Motor, Laser mit Schneckenrad	SC radial motor BLK	M 902
32 631 00-49750	Motor, Schlitten mit Pulley	SC loading motor BLK	M 903
32 632 00-327	Mikroschalter Laser	Leafswitch laser	SW 1
32 633 00-327	Schaltkontakt Anschlag In	Leafswitch stop in	SW 2
32 634 00-327	Schaltkontakt Anschlag Out	Leafswitch stop out	SW 3

Explosionsdarstellung Mechanik
Exploded view mechanism



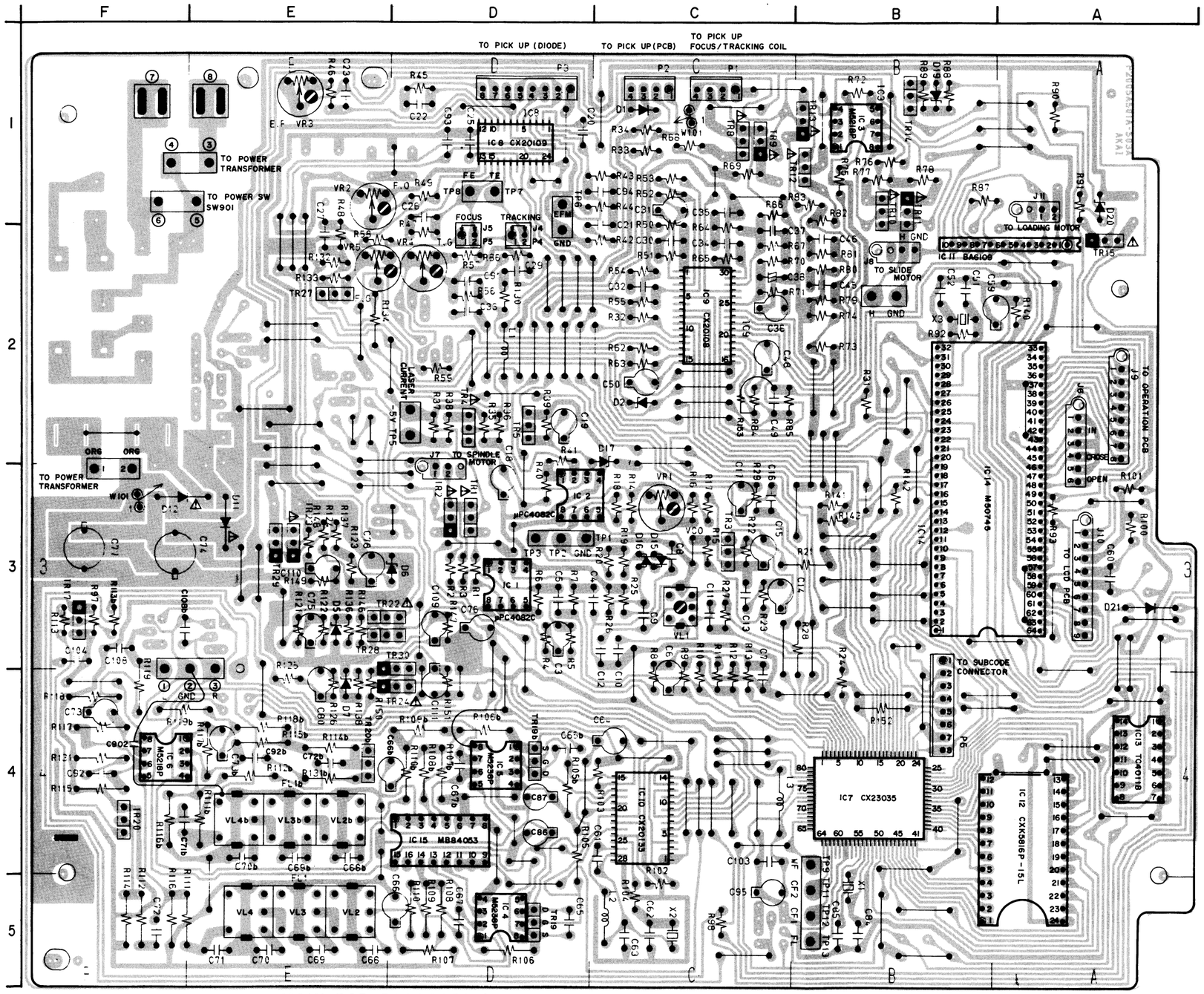
Bestell-Nr./Part No.	Bezeichnung	Description	Pos.-Nr./Ref. No.
27 354 00-5031	Grundplatine	Main P.C.B.	B 2
32 558 00-302	IC UPC 4082 C		IC 1, 2
29 189 00-302	IC M 5218 P		IC 3, 6
32 559 00-302	IC M 5238 P		IC 4, 5
32 560 00-302	IC CX 23035		IC 7
32 561 00-302	IC CX 20109		IC 8
32 562 00-302	IC CX 20108		IC 9
32 563 00-302	IC CX 20133		IC 10
32 564 00-302	IC BA 6109		IC 11
32 565 00-302	IC CXK 5816 P-15 L		IC 12
26 105 00-302	IC TC 4011 BP		IC 13
32 566 00-302	IC M 50745		IC 14
32 567 00-302	IC MB 84053 B		IC 15
14 316 00-301	Trans 2 SD 612 K-E		TR 1, 8, 12
32 568 00-301	Trans 2 SB 632 K E, F		TR 2, 9
32 569 00-301	Trans 2 SC 2603 G F05		TR 3, 5, 16, 27
32 570 00-301	Trans 2 SD B63-V8 F		TR 4, 10
32 571 00-301	Trans 2 SB 764 E, F		TR 11, 13
32 572 00-301	Trans 2 SC 3242A F, G F05		TR 14
32 573 00-301	Trans 2 SA 1282 A F, G F05		TR 15
32 574 00-301	Trans 2 SA 1392 S, T		TR 17, 29, 30
32 575 00-301	Trans FET 2 SK 170 BL, GR, V		TR 19
32 576 00-301	Trans 2 SC 3383 S, T		TR 20, 28
32 577 00-301	Trans 2 SC 3116 S, T		TR 22
32 578 00-301	Trans 2 SA 1248 S, T		TR 23, 24
32 579 00-304	Diode HGMA D1 FY2 F05		D 1
32 580 00-3044	Zenerdiode HZ 6B3		D 2
32 329 00-3044	Zenerdiode HZ 6A3		D 5–7, 17
32 581 00-304	Diode W 03 B 100		D 11, 12
22 955 00-3043	Diode SVC 321		D 15, 16
32 582 00-3044	Zenerdiode HZ 6 G 3		D 19
32 583 00-3044	Zenerdiode HZ 7 B 1		D 20
32 584 00-304	Diode H DS 448		D 21
32 585 00-3231	Trimmpoti 3,3 K	Trimming potentiometer 3,3 K	VR 1
32 586 00-3231	Trimmpoti 100 K	Trimming potentiometer 100 K	VR 2, 3
32 587 00-3231	Trimmpoti 22 K	Trimming potentiometer 22 K	VR 4
32 588 00-3231	Trimmpoti 10 K	Trimming poteutiometer 10 K	VR 5
32 589 00-3253	A119 AN-167377 Filter	Filter A 119	VL 1
32 590 00-3252	Filter 25-5430-13 weiß	Filter white	VL 2
32 591 00-3252	Filter 25-5431-13 rot	Filter red	VL 3
32 592 00-3252	Filter 25-5432-13 schwarz	Filter black	VL 4
32 593 00-3253	Spule LA L03 KH 100K	Coil LA L03 KH 100K	L 1
32 594 00-3253	Spule LA L03 KH 1ROM	Coil LA L03 KH 1ROM	L 2
32 595 00-3253	Spule LA L04 100K	Coil LA L04 100 L	L 3
32 596 00-3259	Quarz 8,467200 MHz	Crystal 8,467200 MHz	X 1
32 597 00-3259	Quarz 35,002000 MHz	Crystal 35,002000 MHz	X 2
32 598 00-3259	Quarz 4 MHz	Crystal 4 MHz	X 3
27 355 00-5031	Anzeigeblock komplett	Indication block assembly	B 3
32 600 00-3291	Lampe mit Sockel 14 V/100 mA	Lamp with socket 14 V/100 mA.	B 4
20 706 00-55016	Bedienteil-Platine 390 mm breit	Control P.C.B. 390 mm broad	B 5
20 743 00-55016	Bedienteil-Platine 350 mm breit	Control P.C.B. 350 mm broad	B 5
23 366 00-3277	Taste KHH 10908		B 6
20 707 00-55016	Stromversorgungs-Platine kpl.	Power supply P.C.B.	B 7
31 335 00-3242	Trafo EI 48	Power transformer	B 9
31 340 00-3273	Netzschalter	Power switch	B 10

Explosionsdarstellung Gehäuse
Exploded view housing parts



II. Platinendarstellung

P.C.B. Diagrams

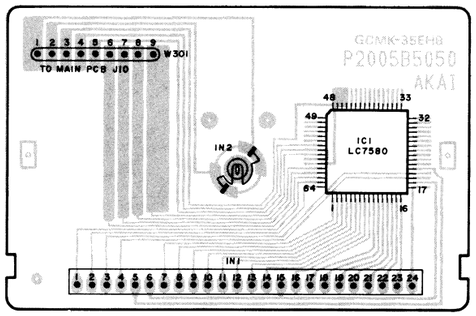


LOCATION OF COMPONENTS

TR'S	CONNECTOR'S
TR1,2.....D3	P1,2.....C1
TR3.....C3	P3.....D1
TR4,5.....D2	P6.....B4
TR8,9.....C1	J6.....A2
TR10to14...B1	J7.....D3
TR15.....A1	J8.....B1
TR17.....F3	J9.....A2
TR19.....D5	J10.....A3
TR19b.....D4	J11.....A1
TR20.....F4	
TR20b.....E4	
TR22.....DE3	
TR23.....E3	
TR24.....DE4	
TR27.....E2	
TR28.....DE3	
TR29.....E3	
TR30.....DE4	

IC'S

IC1,2.....D3	TR1,8,12.....2SD612K(E,F)
IC3.....B1	TR2,9.....2SB632K(E,F)
IC4.....D5	TR3,5,16,27.....26C2603(E,F)
IC5.....D4	TR4,10.....2SD863(E,F)
IC6.....F4	TR11,13.....2SB764(E,F)
IC7.....B4	TR14.....2SC3242A(F,G)
IC8.....D1	TR15.....2SA1282A(F,G)
IC9.....C2	TR17,29,30.....2SA1392(S,T)
IC10.....C4	TR19,19b.....2SK170(BL,GR)
IC11.....AB1	TR20,20b,28.....2SC3383(S,J)
IC12,13....A4	TR22.....2SC3116(S,T)
IC14.....AB3	TR23,24.....2SA1248(S,T)
IC15.....D4	



LCD PCB P2005B5050

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

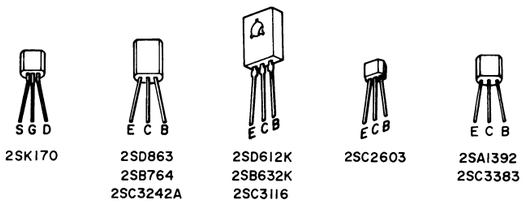
AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

B = NPN TRANSISTOR

B = PNP TRANSISTOR

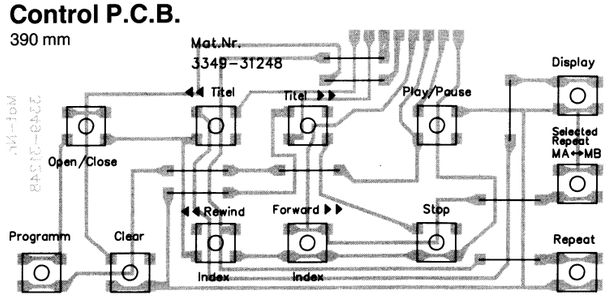
ADJUSTMENT VOLUMES & COIL

VR 1 : VCO (VOLTAGE CONTROLED OSCILLATOR)
VR 2 : FOCUS OFF-SET
VR 3 : EF BALANCE (TRACKING ERROR)
VR 4 : TRACKING GAIN
VR 5 : FOCUS GAIN
VL 1 : VCO FREQUENCY



Control P.C.B.

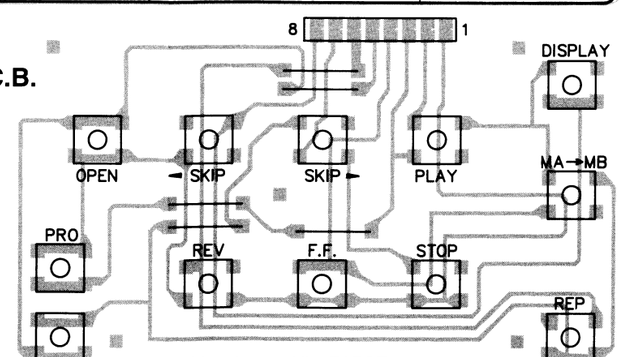
390 mm



MC-Service

Control P.C.B.

350 mm

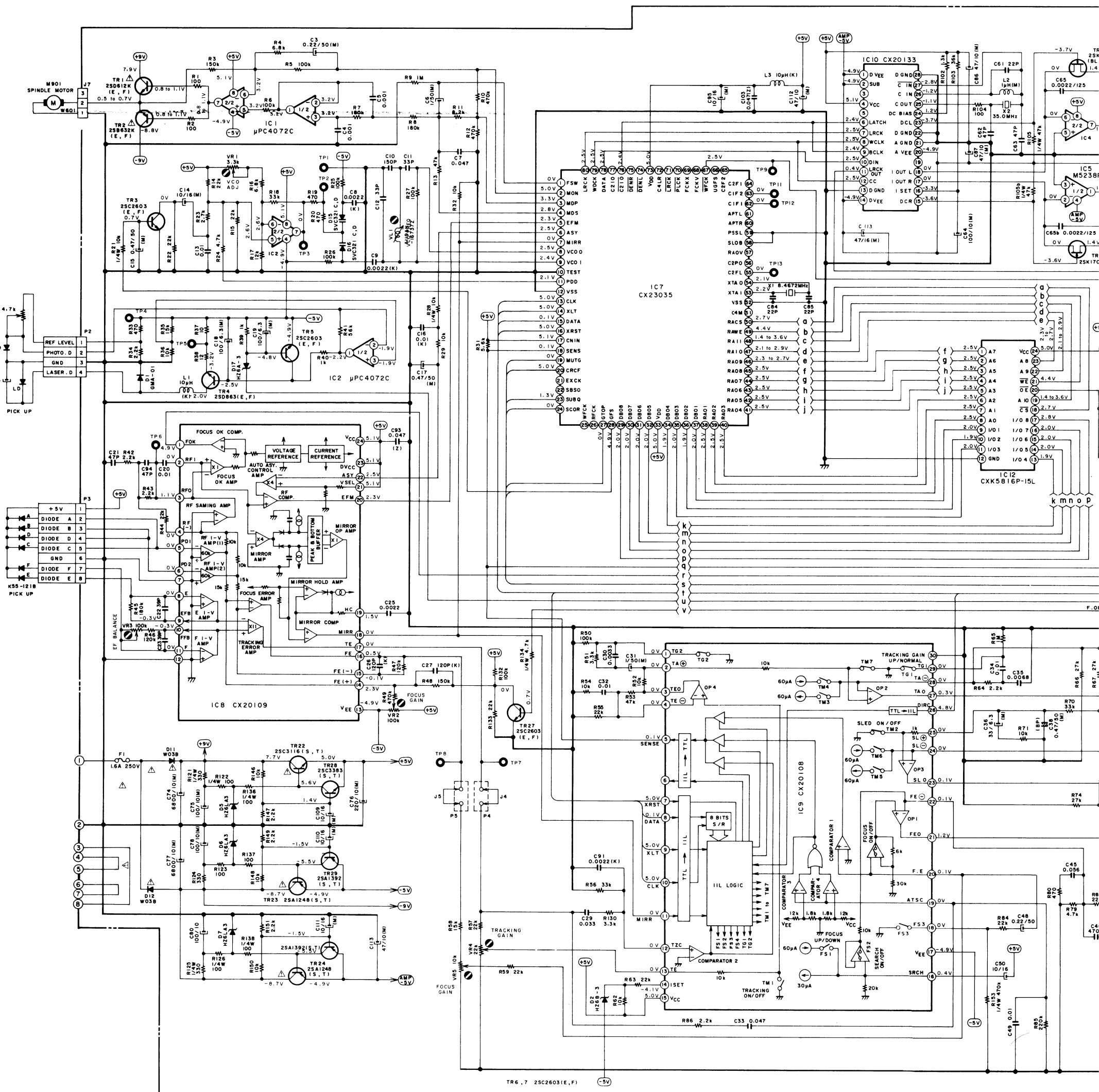


III. Schaltbild

Schematic diagram

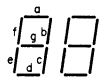
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT



EXPLANATION OF LCD.

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
COM1	COM	—	▶	M-A M-B	INDIVI-DUAL	RE-PEAT	1d	1e	1f	1g	2d	2e	2f	2g	—	3d	3e	3f	3g	4d	4e	4f	4g	INDEX NO.
COM2	—	COM	▮▮	PRO-GRAM	TOTAL	—	—	1c	1a	1b	—	2c	2a	2b	MUSIC NO.	—	3c	3a	3b	—	4c	4a	4b	MIN SEC



LCD PCB P2005B5050

INI LCD 9421P

IC1 LC7580

IC4 M5238P

IC5 M5238P

IC15 MB84053B

IC6 M5218P

IC6 M5218P

IC14 M50745

IC13 TC4011BP

IC12 CXK5816P-15L

IC10 CX20133

IC9 CX20108

IC3 M5218P

IC11 BA6109

TR19 2SK170 (BL, GR)

TR19b 2SK170 (BL, GR)

TR20 2SC3383 (S, T)

TR20b 2SC3383 (S, T)

TR17 2SA1392 (S, T)

TR14 2SC3242A (F, G)

TR15 2SA1282A (F, G)

TR8 2SD612K (E, F)

TR9 2SB632K (E, F)

TR12 2SD612K (E, F)

TR13 2SB764 (E, F)

TR10 2SD863 (E, F)

TR11 2SB764 (E, F)

D21 DS448

D18 HZ6C-3

D20 HZ7B-1

X1 8.4672MHz

X2 35.0MHz

X3 4.00MHz

SW1 PCB

SW1 OPEN/CLOSE ≙
SW2 STOP □
SW3 PLAY/PAUSE ▷ / ▯▯
SW4 REV ◁◁
SW5 FORWARD ▷▷
SW6 SKIP/INDEX ⏮
SW7 SKIP/INDEX ⏭
SW8 PROGRAM
SW9 CLEAR
SW10 MA←→MB
SW11 REPEAT
SW12 DISPLAY

2SA1248
2SB632K
2SC3116
2SD612K

2SA1115
2SC2603

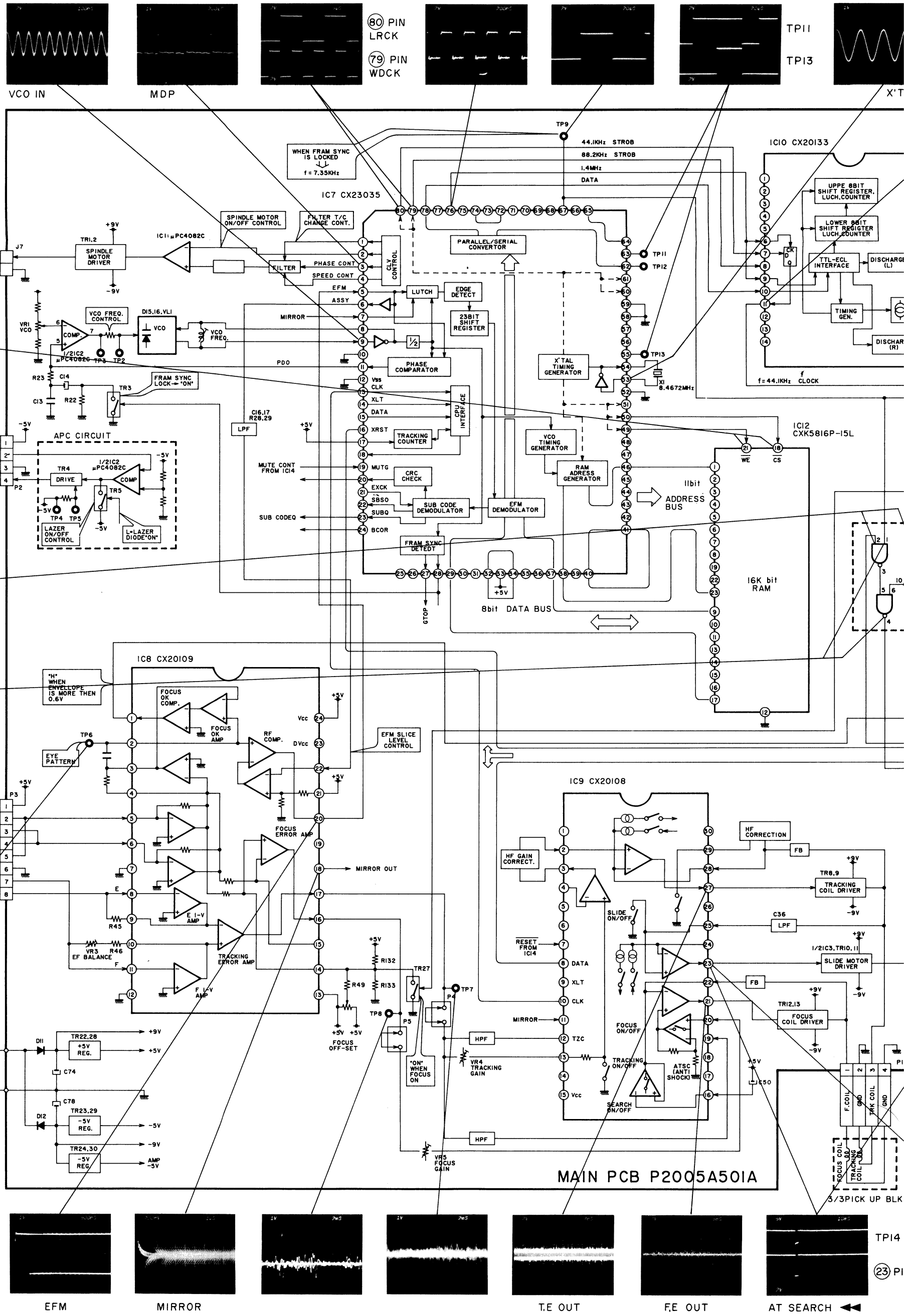
2SA1392
2SC3383

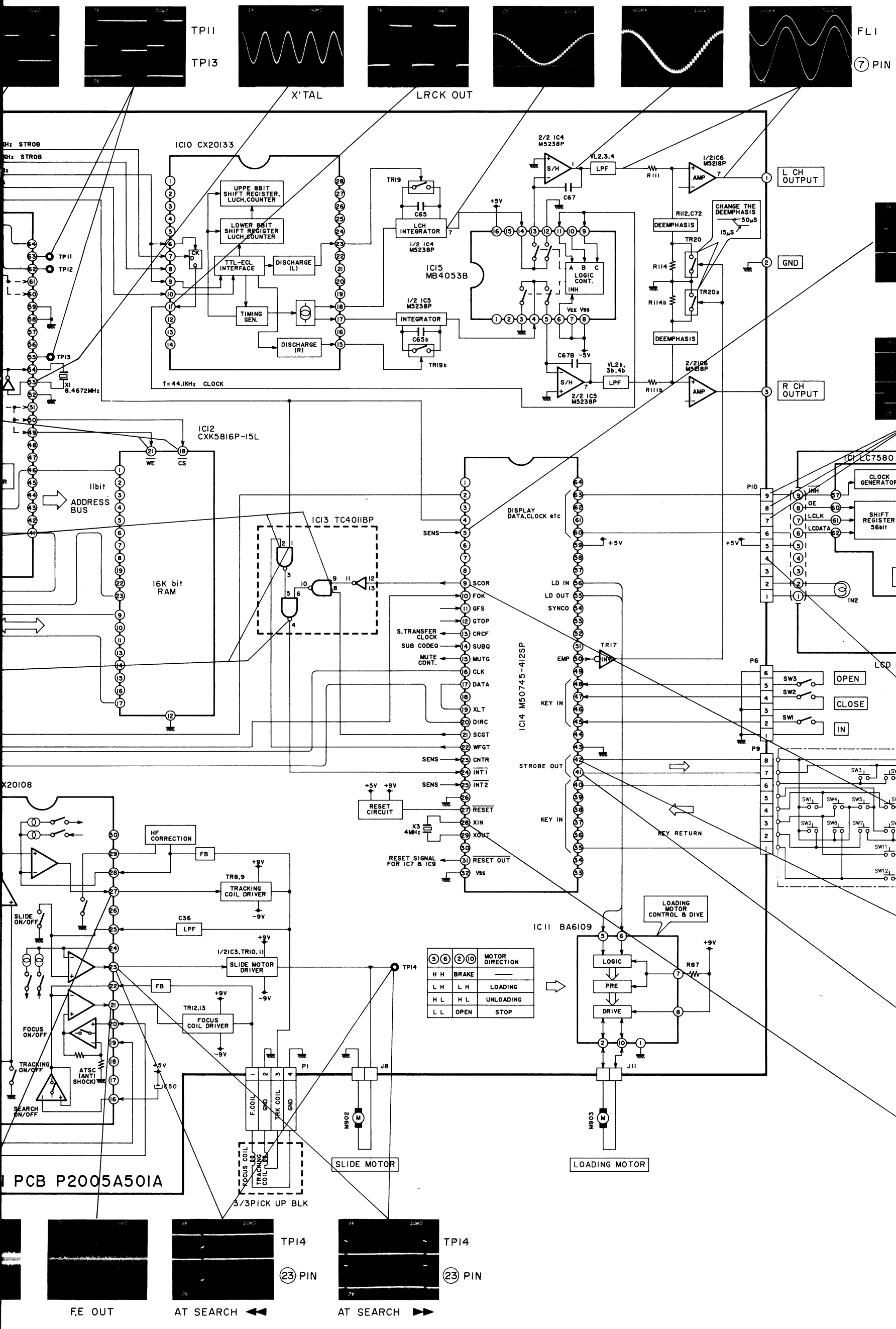
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT
ACCORDING TO AREA

INDICATED VOLTAGES ARE
MEASURED AT PLAY MODE

IV. Blockschaltbild

Block diagram

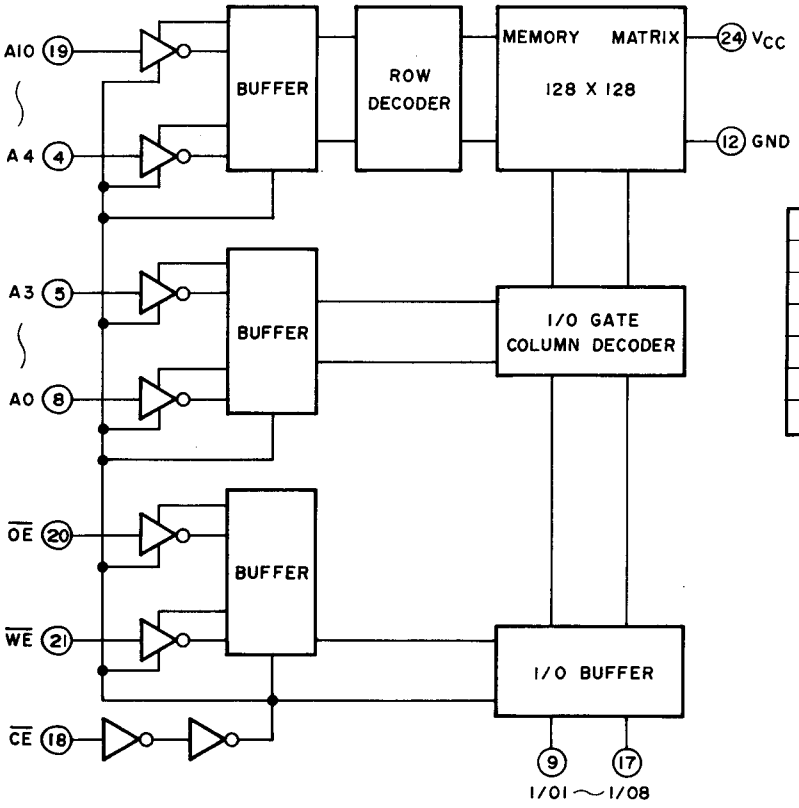



TP11
TP13
X'TAL
LRCK OUT
FL1
7 PIN
IC10 CX20133
UPPE 8BIT SHIFT REGISTER, LUCH.COUNTER
LOWER 8BIT SHIFT REGISTER LUCH.COUNTER
TTL-ECL INTERFACE
DISCHARGE (L)
TIMING GEN.
DISCHARGE (R)
TR19
C65
LCH INTEGRATOR
1/2 IC4 M5238P
1/2 IC5 M5238P
INTEGRATOR
C65b
TR19b
IC15 MB4053B
A B C
LOGIC CONT.
INH
VEE Vss
2/2 IC4 M5238P
S/H
LPF
VL2,3,4
R111
C67
+5V
1/2IC6 M5218P
AMP
L CH OUTPUT
DEEMPHASIS
R112,C72
CHANGE THE DEEMPHASIS
50μS
15μS
TR20
R114
TR20b
R114b
GND
C67B -5V
VL2b, 3b,4b
R111b
2/2IC6 M5218P
R CH OUTPUT
9 PIN
8 PIN
7 PIN
TP11
TP12
TP13
XI 8.4672MHz
f=44.1KHz CLOCK
IC12 CXK5816P-15L
WE
CS
11bit ADDRESS BUS
16K bit RAM
IC13 TC4011BP
DISPLAY DATA,CLOCK etc
SENS
SCOR
FOK
GFS
GTOP
CRCF
SUBQ
MUTG
CLK
DATA
XLT
DIRC
SCGT
WFGT
CNTR
INT1
INT2
RESET
XIN
XOUT
RESET OUT
Vss
S.TRANSFER CLOCK
SUB CODEQ
MUTE CONT.
LD IN
LD OUT
SYNCO
EMP
KEY IN
STROBE OUT
KEY RETURN
IC14 M50745-412SP
RESET CIRCUIT
X3 4MHz
RESET SIGNAL FOR IC7 & IC9
IC1 LC7580
CLOCK GENERATOR
SHIFT REGISTER 56bit
LATCH DRIVER
COMMON DRIVER
INH
OE
LCLK
LCDATA
SI
S2I
COM1
COM2
IN2
P10
P6
P9
LCD PCB. P2005B5050
SW3
SW2
SW1
OPEN
CLOSE
IN
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
OSC
X'TAL IN
HF CORRECTION
FB
TR8,9
TRACKING COIL DRIVER
C36
LPF
1/2IC3,TRI0,11
SLIDE MOTOR DRIVER
TR12,13
FOCUS COIL DRIVER
SLIDE ON/OFF
FOCUS ON/OFF
TRACKING ON/OFF
SEARCH ON/OFF
ATSC (ANTI SHOCK)
1650
PCB P2005A501A
TP14
IC11 BA6109
LOADING MOTOR CONTROL & DIVE
LOGIC
PRE
DRIVE
R87
⑤⑥ ②⑩ MOTOR DIRECTION
H H BRAKE —
L H L H LOADING
H L H L UNLOADING
L L OPEN STOP
P1
J8
J11
F.COIL
GND
TRK COIL
GND
FOCUS COIL
TRACKING COIL
3/3PICK UP BLK
M902
SLIDE MOTOR
M903
LOADING MOTOR
TP14
23 PIN
TP14
23 PIN
F.E OUT
AT SEARCH ◄◄
AT SEARCH ►►

V. Purpose of each IC

IC No.	NAME OF IC's	PURPOSE
IC 1, 2	MPC4082C	DUAL LOW NOISE OPERATIONAL AMPLIFIERIC
IC 3, 6	M5218P	DUAL LOW NOISE OPERATIONAL AMPLIFIER
IC 4, 5	M5238P	DUAL LOW NOISE OPERATIONAL AMPLIFIER
IC 7	CX23035	EFM DEMODULATIOR, ERROR DETECTION AND CORRECTION FRAME SYNC DETECTION, SUB CODE DETECTION AND DEMODULATION, SPINDLE MOTOR SERVO
IC 8	CX20109	RF AMPLIFIER
IC 9	CX20108	SERVO SIGNAL PROCESSOR
IC 10	CX20133	16 BIT D/A CONVERTOR
IC 11	BA6109	LOADING MOTOR CONTROL
IC 12	CXK5816P-15L	16K BIT RANDAM ACCESS MEMORY
IC 13	TC4011BP	NAND GATE
IC 14	M50745	SYSTEM CONTROL (8 BIT MICROCOMPUTER)
IC 15	MB84053	TRIPE-2CHANNEL MULTIPLEXER/DEMULTIPLEXER
IC 1	LC7580	LCD BLOCK

CXK5816P-15L

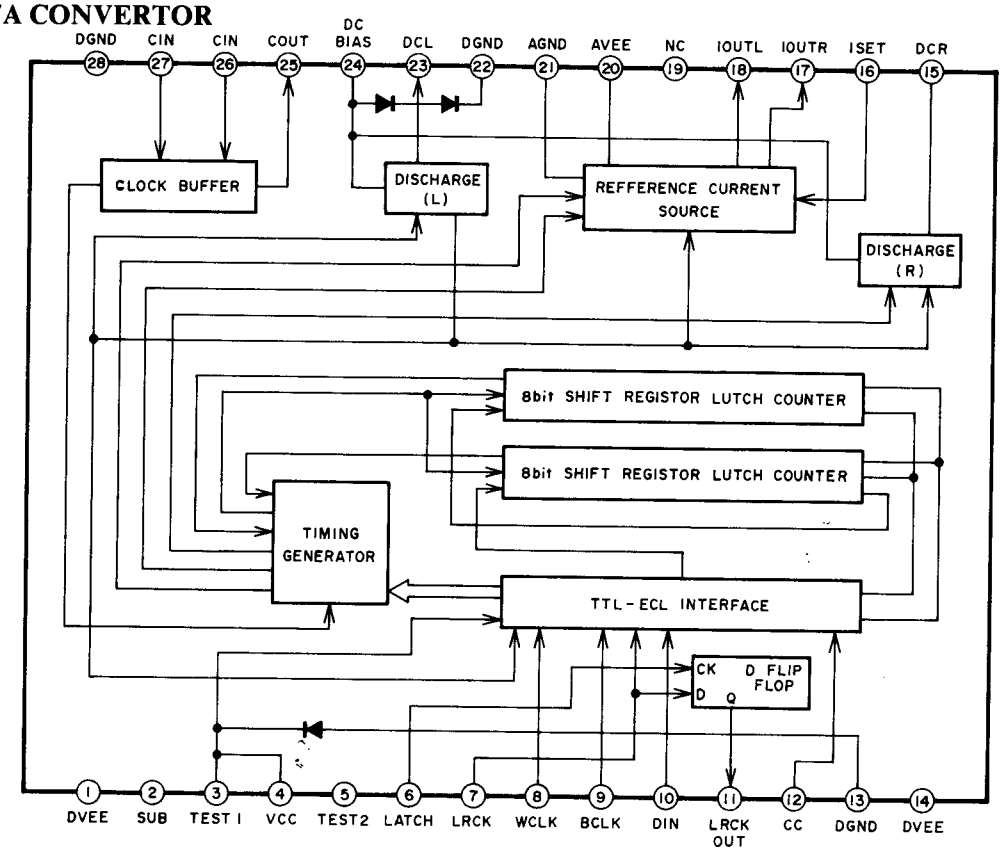


A0 ~ A10	Address input
I/O1 ~ I/O8	Data IN/OUT
$\overline{CE}$	Chip enable signal input
$\overline{WE}$	Write enable signal input
$\overline{OE}$	Output enable signal input
Vcc	+5V
GND	GND

IC BLOCK DIAGRAM

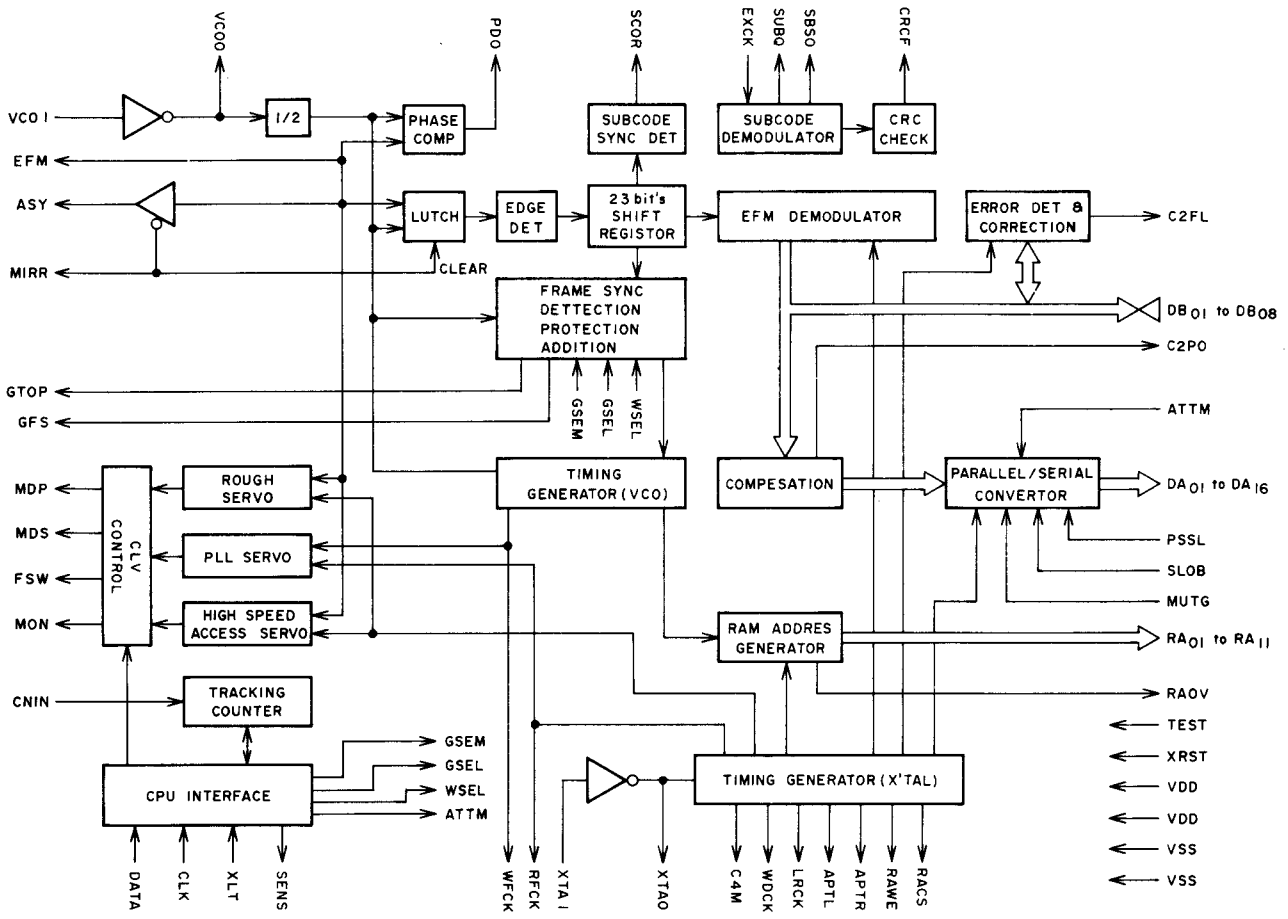
CX20133

16 Bits D/A CONVERTOR



CX20133

Pin No.	Symbol	Description	
1	DVEE	−5V	
2	SUB	Substrate −5V, same level as DVEE	
3	TEST 1	NC	
4	VCC	+5V	
5	TEST 2	NC	
6	LATCH	Clock input for D-Flip Flop	
7	LRCK	L-ch, R-ch clock, "Low" R-ch, "High"L-ch	
8	WCLK	Word Clock	
9	BCLK	Bit Clock	
10	DIN	Data In	
11	LRCK OUT	L-ch, R-ch Clock Out	
12	CC	Conversion command input	
13	DGND	Digital GND	
14	DVEE	−5V	
15	DCR	R-ch discharge control signal out	LRCK"HIGH"
16	ISET	Current set control signal for IOUTR, IOUTL	
17	IOUTR	R-ch current signal OUT	LRCK "HIGH"
18	IOUTL	L-ch current signal OUT	LRCK "LOW"
19	—	NC	
20	AVEE	−5V	
21	AGND	Analog GND	
22	DGND	Digital GND	
23	DCL	L-ch discharge control signal out	LRCK "LOW"
24	DC BIAS	DC Bias for discharge (2.5 mA)	
25	COUT	Clock Out	
26	CIN	Clock In	
27	$\overline{\text{CIN}}$	Clock In	
28	DGND	Digital GND	



CX23035

Pin No.	Symbol	I/O	Description
1	FSW	O	Spindle motor filter switching control
2	MON	O	Spindle motor ON/OFF control
3	MDP	O	Spindle motor speed and phase control
4	MDS	O	Spindle motor speed control
5	EFM	I	EFM signal input
6	ASY	O	EFM signal slice level control
7	MIRR	I	MIRR signal input "L" on track "H" mirror
8	VCOO	O	VCO output f = 8.6436 MHz
9	VCOI	I	VCO input
10	TEST	I	0V (GND)
11	PDO	O	Phase comp. output
12	VSS	—	GND (0V)
13	CLK	I	Clock signal from CPU
14	XLT	I	Lutch signal from CPU
15	DATA	I	Serial data from CPU
16	XRST	I	RESET input "L" reset
17	CNIN	I	Tracking pulse input (+5V)
18	SENS	O	Output of CPU interface
19	MUTG	I	Mute control signal input
20	CRCF	O	CRC check output of the subcode Q "L" detect error
21	EXCK	I	Not used
22	SBSO	O	Not used
23	SUBQ	O	Subcode Q output
24	SCOR	O	Subcode sync detection output
25	WFCK	O	Not used (Write frame clock)
26	RFCK	O	Not used (Read frame clock)
27	GTOP	O	Frame sync detection output
28	GFS	O	"H" frame sync lock "L" frame sync unlock

Pin No.	Symbol	I/O	Description
29	DB08	I/O	Data 8 (MSB)
30	DB07	I/O	Data 7
31	DB06	I/O	Data 6
32	DB05	I/O	Data 5
			Data Bus line for the EXT. RAM (CXK5816P-15L)
33	VDD	—	+5V
34	DB04	I/O	Data 4
35	DB03	I/O	Data 3
36	DB02	I/O	Data 2
37	DB01	I/O	Data 1 (LSB)
			Data Bus line for the EXT. RAM (CXK5816P-15L)
38	RA01	O	ADDR01 (LSB)
39	RA02	O	ADDR02
40	RA03	O	ADDR03
41	RA04	O	ADDR04
42	RA05	O	ADDR05
43	RA06	O	ADDR06
44	RA07	O	ADDR07
45	RA08	O	ADDR08
46	RA09	O	ADDR09
47	RA10	O	ADDR10
48	RA11	O	ADDR11 (MSB)
			Address signal output for the EXT. RAM (CXK5816P-15L)
49	RAWE	O	Write enable signal output "L" active
50	RACS	O	Chip select signal output "L" active
51	C4M	O	Not used
52	VSS	—	GND (0V)
53	XTAI	I	X'TAL OSC. input f = 8.4672 MHz
54	XTAO	O	X'TAL OSC. output f = 8.4672 MHz
55	C2FL	O	Monitor of error detection *
56	C2PO	O	Not used
57	RAOV	O	Not used
58	SLOB	I	0V (GND)
59	PSSL	I	0V (GND)
60	APTR	O	Not used
61	APTL	O	Not used
62	DA01	O	C1F1 *
63	DA02	O	C1F1 *
64	DA03	O	C2F1 * Not used
65	DA04	O	C2F2 * Not used
66	DA05	O	UGFS Not used
67	DA06	O	$\overline{\text{WFCK}}$ INV write frame clock signal output
68	DA07	O	Not used FCKV 1/4 or 1/8 WFCK output
69	DA08	O	Not used FCKX 1/4 or 1/8 RFCK output
70	DA09	O	Not used $\overline{\text{PLCK}}$ 1/2 VCO output
71	DA10	O	Not used $\overline{\text{LRCK}}$ INV. LRCK (Pin 80)
72	DA11	O	Not used C4LR 176.4 kHz strobe signal output
73	VDD	—	+5V
74	DA12	O	Not used $\overline{\text{DENL}}$ L-ch serial data enable signal
75	DA13	O	Not used $\overline{\text{DENR}}$ R-ch serial data enable signal
76	DA14	O	$\overline{\text{C210}}$ INV. C210 (Pin 77)
77	DA15	O	Not used C210 Bit clock f = 2.1168 MHz
78	DA16	O	Data output
79	WDCK	O	Worde clock output 88.2 kHz strobe signal
80	LRCK	O	L-ch, R-ch clock output 44.1 kHz strobe signal

* Monitor Signal refer to Fig. 1 & Fig. 2

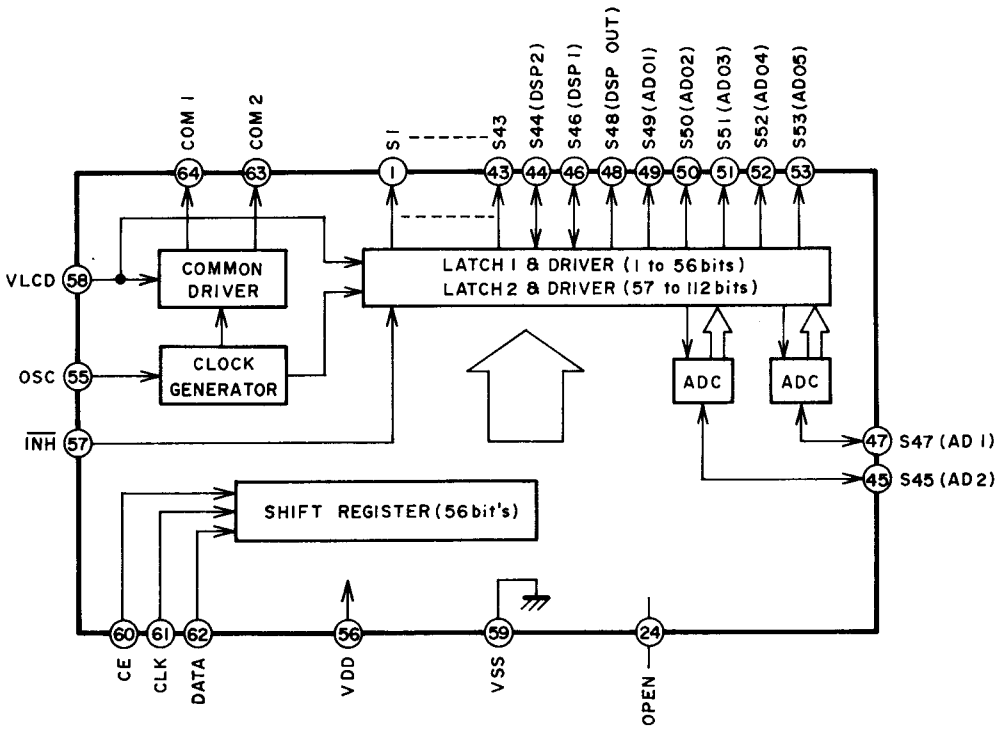
C1F1	C1F2	C1 Correction
O	O	No error
I	O	Signal error correction
O	I	Double error correction
I	I	Irretrievable error

Fig. 1

C2F1	C2F2	C2FL	C2 Correction
O	O	O	No error
I	O	O	Signal error correction
O	I	O	Double error correction
I	I	I	Irretrievable error

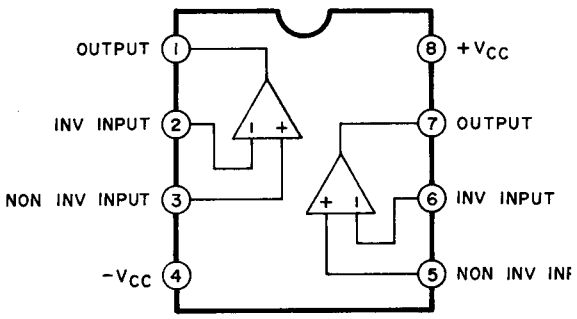
Fig. 2

LC7580

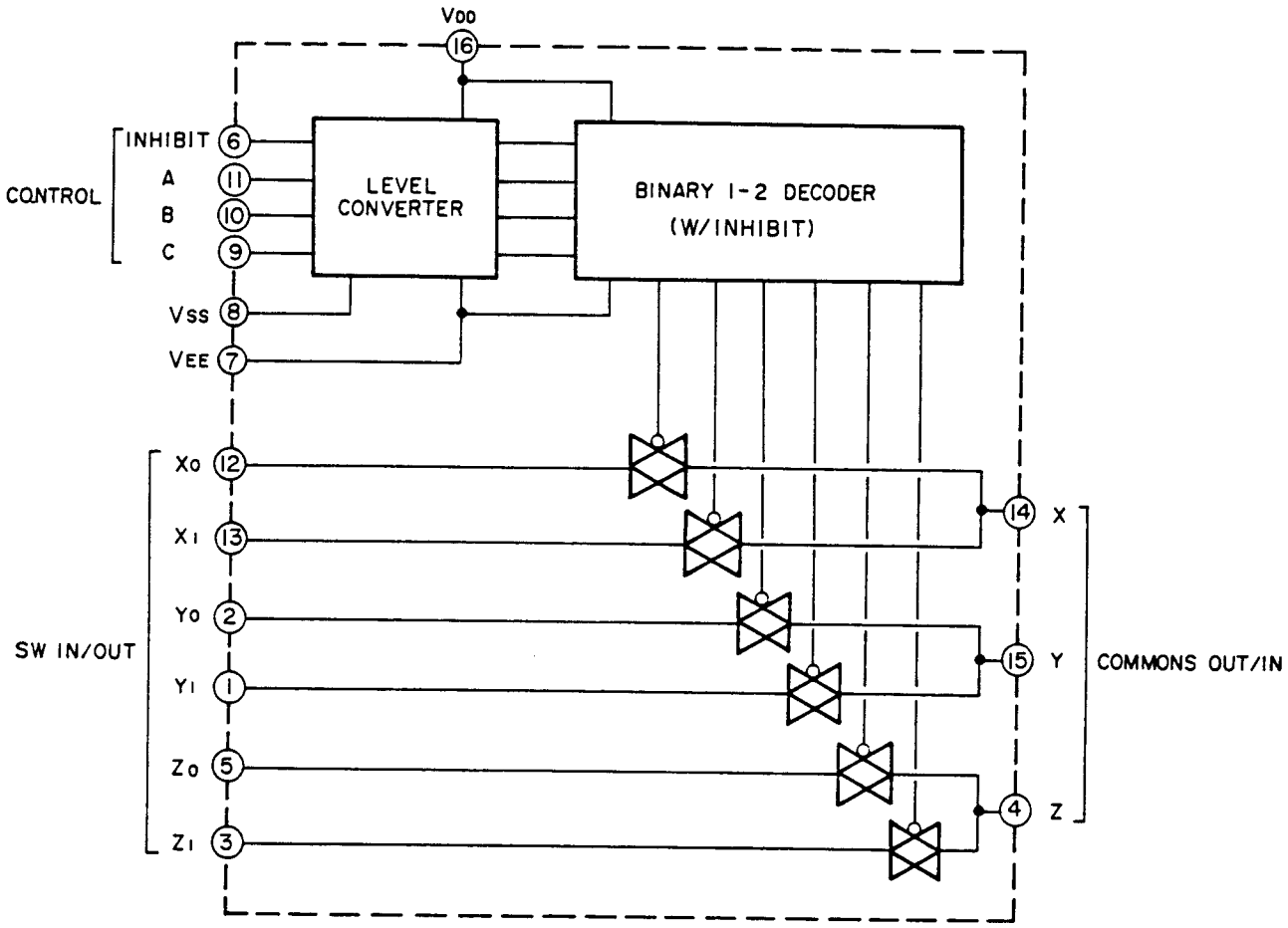


S1 ~ S43	Segment drive Output
S46 (DSP), S44 (DSP2)	Segment drive Output/DSP Input
S47 (AD1), S45 (AD2)	Segment drive Output/AD Input
S48 (DSP OUT)	Segment drive Output/DSP Output
S49 ~ S53	Segment drive Output/AD Output
COM 1, 2	Common Output
V LCD	LCD Bias voltage
OSC	OSC control
CE, CLK. Data	Serial data Input
VSS, VDD	GND, +5V
$\overline{\text{INH}}$	Display OFF signal Input
Open	Not used

M5218P, M5238P, μPC4082C



MB84053



Controls				"ON" channel		
INH	C	B	A			
0	0	0	0	Z_0	Y_0	X_0
0	0	0	1	Z_0	Y_0	X_1
0	0	1	0	Z_0	Y_1	X_0
0	0	1	1	Z_0	Y_1	X_1
0	1	0	0	Z_1	Y_0	X_0
0	1	0	1	Z_1	Y_0	X_1
0	1	1	0	Z_1	Y_1	X_0
0	1	1	1	Z_1	Y_1	X_1
1	–	–	–	None		

M50745

Pin No.	Symbol	Description
1	$P4_2$	Not used
2	$P4_1$	
3	$P4_0$	Not used
4	$P2_7$	Write focus clock input
5	$P2_6$	Sens signal input
6	NC	Not used

Pin No.	Symbol	Description
7	NC	Not used
8	NC	Not used
9	SCOR	Subcode detection signal input
10	FOK	Focus servo "OK" signal input
11	GFS	"H" frame sync lock "L" frame unlock
12	GTOP	Frame sync detection signal input
13	CRCF	CRC check signal input
14	SUBQ	Subcode Q input
15	MUTG	Mute control signal output
16	CLK	Clock signal output
17	DATA	Data signal output
18	SIN	Not used
19	XLT	Lutch signal output
20	DIRC	Track jamp control signal output "H" normal, "L" track jamp
21	SCGT	Subcode gate signal output
22	WFGT	Write frame gate signal output
23	CNTR	Sens signal input from IC7
24	$\overline{INT_1}$	Sens signal input from IC13
25	$\overline{INT_2}$	Sens signal input from IC7
26	CNVss	0V (GND)
27	$\overline{RESET}$	Reset signal input
28	XIN	Clock input
29	XOUT	Clock output
30	ϕ	Not used
31	$\overline{RESET\ OUT}$	Reset signal output
32	Vss	0V (GND)
33	$P5_7$	Not used
34	$P5_6$	Not used
35	$P5_5$	Key input (Skip ⏮, display)
36	$P5_4$	Key input (Stop, skip ⏭)
37	$P5_3$	Key input (Search ◀◀, repeat)
38	$P5_2$	Key input (Open/Close, Clear)
39	$P5_1$	Key input (Search ▶▶, MA ⟷ MB)
40	$P5_0$	Key input (Play/pause, Program)
41	PI_7	Data strobe out for operation key
42	PI_6	
43	PI_5	0V (GND)
44	PI_4	Not used
45	PI_3	Pick up block in switch input
46	PI_2	Not used
47	PI_1	Disk tray close switch input
48	PI_0	Disk tray open switch input
49	LASER	Laser control signal output
50	EMP	Emphasis control signal output
51	KICK	Not used
52	$P\phi_4$	Not used
53	SYNC 1	Not used
54	SYNC 0	Synchronize signal output
55	LD OUT	Loading motor out control signal
56	LD IN	Loading motor in control signal
57	NC	Not used
58	NC	Not used
59	VCC	+5V
60	$\overline{INH}$	Display off signal output
61	OE	Serial data output for display
62	LCLK	
63	LCDATA	
64	$P4_3$	Not used

VI. Replacement of spindle motor

The turntable of the spindle motor has been pressed-in and they can not be replaced individually. When replacing the turntable or the spindle motor, replace the following parts as a set.

PARTS NO.	DESCRIPTION
BM-361225	MOTOR (SPINDLE)
MZ-362964	TURNTABLE
ZS-624870	HEXAGON SET SCREW

6-1. REMOVE AND ASSEMBLE SPINDLE MOTOR

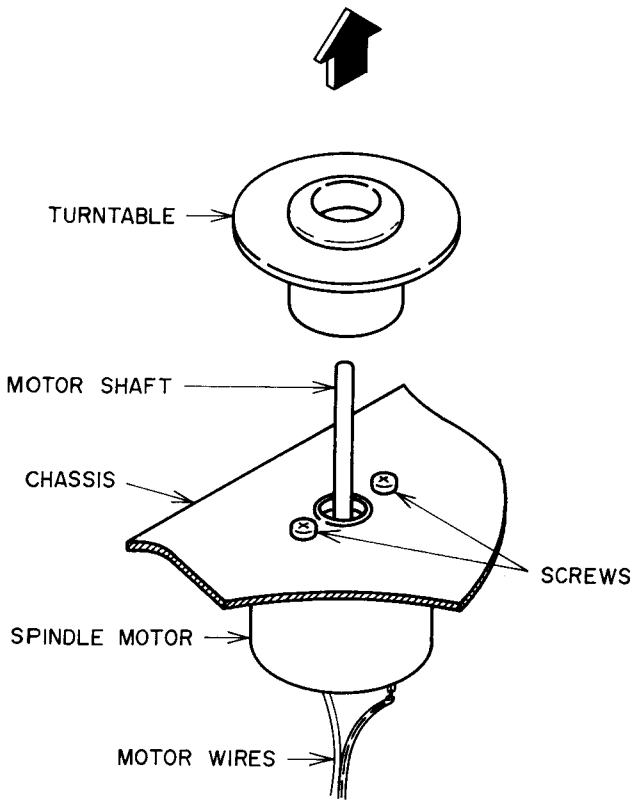


Fig. 6-1

1) Pull out the turntable from the spindle motor.
2) Remove two screws.
3) Unsolder two spindle motor wires.
4) Solder two wires to the new spindle motor.
5) Put the new spindle motor on to the chassis with two screws.
6) Put the new turntable on to the motor shaft and adjust the turntable so that the height of the turntable from chassis becomes 20 mm or its clearance from chassis becomes 4 mm as shown in Fig. 6-2.

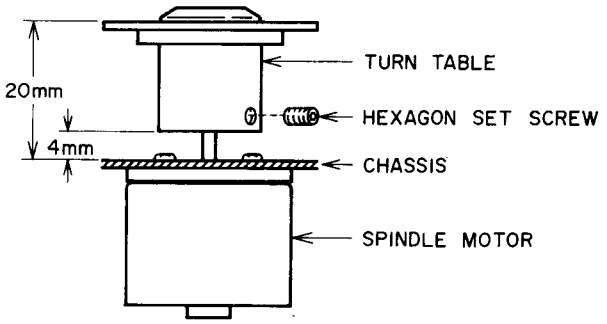


Fig. 6-2

VII. Adjustment

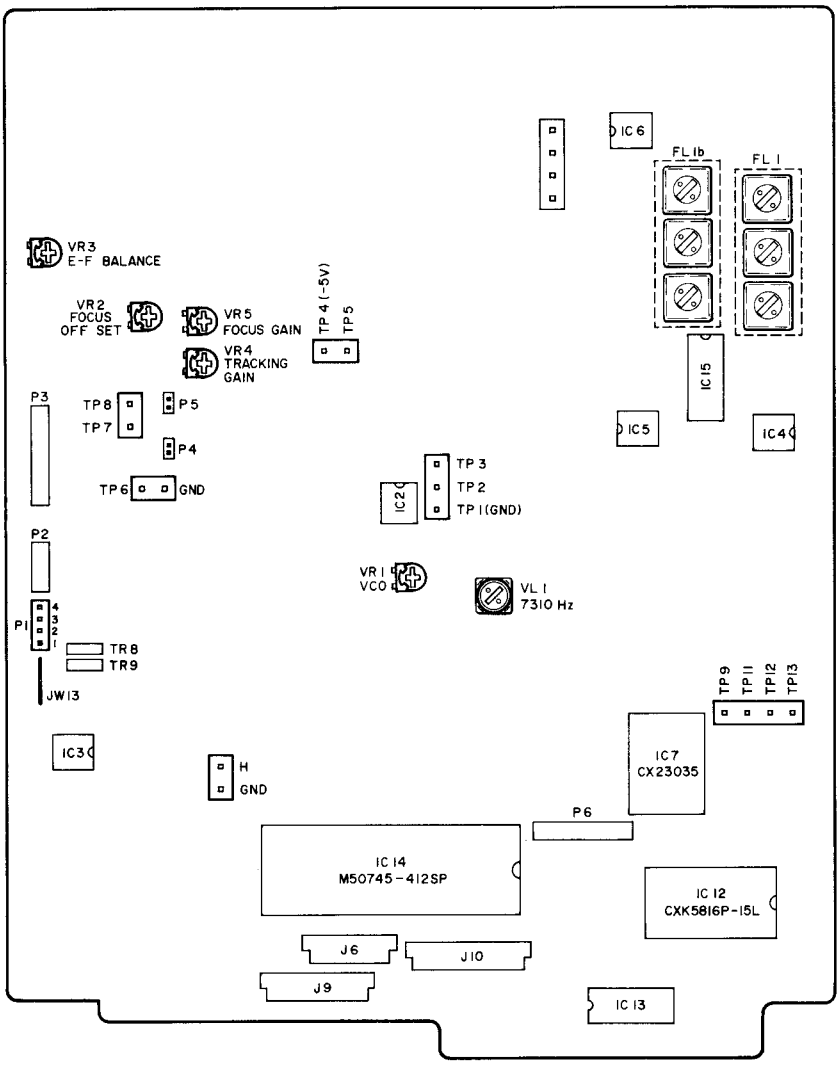


Fig. 7-1

7-1. ADJUSTMENT WHEN CHANGING THE PICK-UP

Change the pick-up, following the procedures in the V. REPLACEMENT OF THE PICK-UP BLOCK and when replacement is complete, turn the short terminal of the LD (Laser Diode) to open.

7-1-1. OPTICAL AXIS ADJUSTMENT

If the mechanical eccentricity is large when fixing the pick-up tracking errors become large.
This in turn interferes with the tracking servo, so optical axis adjustment is necessary.

1) Disconnect P4 on the Main P.C. board (to turn the tracking servo off).
2) Connect an oscilloscope to TP7 on the Main P.C. board.
3) Place the normal music disc, then play back the first music on it and observe the waveform of TP7.
4) Turn the adjustment screw A by degrees (Refer to Fig. 7-2) as waveform (Refer to Fig. 7-3) of TP7 will become maximum.

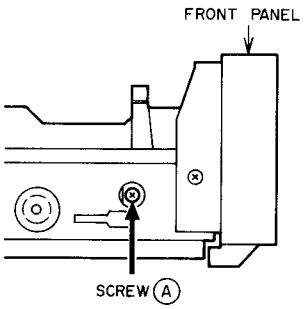


Fig. 7-2

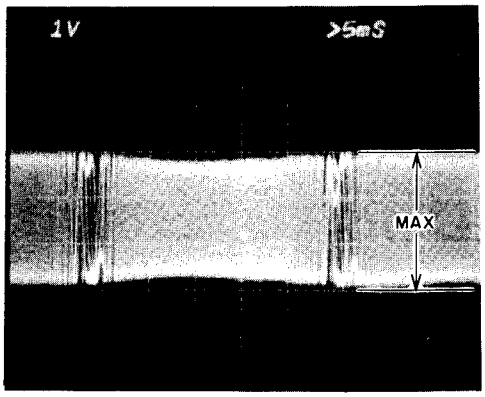


Fig. 7-3

* When it is difficult to observe maximum point of the waveform, use the following rectifier circuit as shown in Fig. 7-4.
  Observe a change in DC voltage through above rectifier with oscilloscope and adjust the optical axis so that the DC voltage reading become maximum.

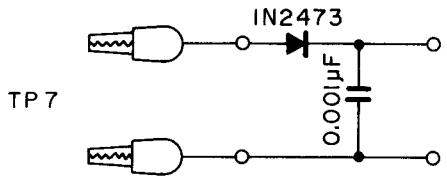


Fig. 7-4

7-1-2. READJUSTMENT OF E-F BALANCE

When the pick-up is changed, E-F balance adjustment must be performed.
Refer to item 7-2-4 for adjustment.

7-1-3. CHECKING THE ELECTRIC CURRENT OF THE LASER

The electric current of the laser is indicated on the labels on the pick-up.

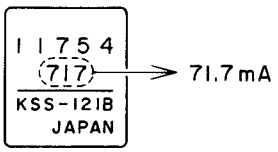


Fig. 7-5

1) Connect the millivoltmeter between TP4 and TP5 on the Main P.C. board and measure the voltage.

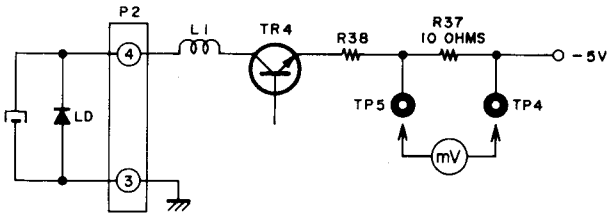


Fig. 7-6

2) Calculate the electric current of the laser from the voltage measured and check that is within ±4 mA of the recommended value.
  Electric current of the laser = Voltage measured ÷ 10.

  If the electric current of the laser exceeds ±4 mA of the recommended value, change the pick-up again.

7-1-4. APC (AUTOMATIC POWER CONTROL) CIRCUITRY

This is a servo circuit to maintain the LD (Laser Diode) power of the pick-up. The LD power has been adjusted by VR1 (on the pick-up block) at manufacture.
Keep safety from hazardous invisible Laser Radiation, do not touch this VR1.

7-2. SERVO ADJUSTMENT

Servo adjustment is an adjustment to the control circuitry for accurate and safe disc play back. When adjusting use a SONY TYPE 3 (No. YEDS 7) or PHILIPS (No. 410056-2 or 400079-2) as a test disc.

7-2-1. VCO FREQUENCY ADJUSTMENT

1) Connect a short wire between TP2 and TP1 (GND).
2) Connect a frequency counter to TP9.
3) Adjust VL1 so that the frequency is 7,310 ± 10 Hz.

7-2-2. VCO ADJUSTMENT

1) Connect an oscilloscope to TP12 on the Main P.C. board.
2) Insert the SONY TEST DISC TYPE-3, then depress the OPEN/CLOSE button to close the disc tray.
3) The total music number selections on the test disc will be displayed on the LC display.
4) Play back the test disc and adjust VR1 so that the error flags are at minimum.

Fig. 7-7

7-2-3. FOCUS OFF-SET ADJUSTMENT

1) Connect the oscilloscope to TP6 and TP8 on the Main P.C. board.
  TP6 ..... Eye pattern waveform
  TP8 ..... Focus error signal

2) Play back the Track No. 17 of PHILIPS TEST DISC and adjust the VR2 so that the noise is at minimum.

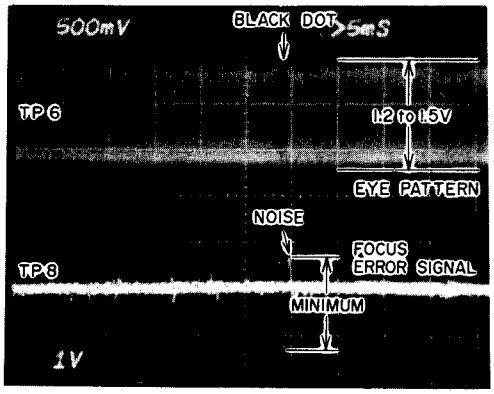


Fig. 7-8

7-2-4. E-F BALANCE ADJUSTMENT

This is to adjust the output balance of diodes E and F for tracking error detection.

When changing the pick-up adjusting the tracking constancy, this must be checked and adjusted.

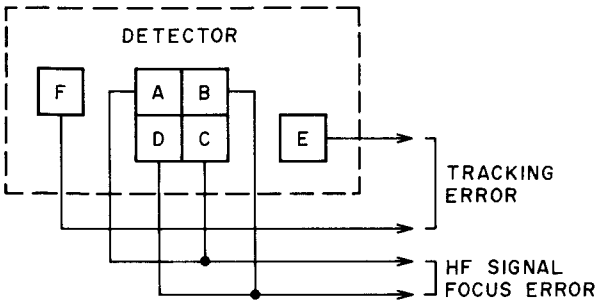


Fig. 7-9

1) Connect the oscilloscope to TP7 on the Main P.C. board.
   Measure direct current voltage via an integral circuitry between TP7 and the oscilloscope as in illustration in Fig. 7-10.

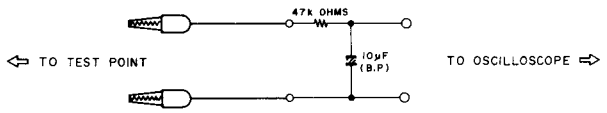


Fig. 7-10

2) Play back the test disc and turn the machine to pause.
3) Extract the short plug (P4) on the Main P.C. board.
4) Adjust the VR1 for E-F balance so that the ground level is center of the waveform.

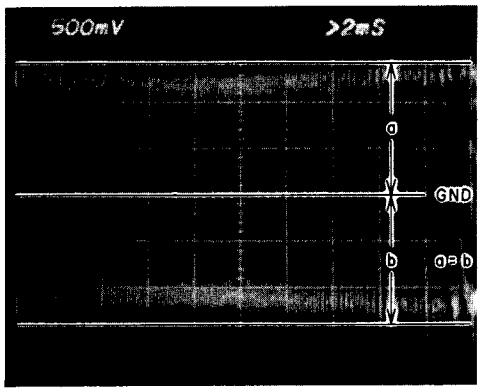


Fig. 7-11

7-2-5. FOCUS GAIN ADJUSTMENT

1) Connect the oscilloscope between P1-pin 1 terminal on the Main P.C. board and earth, and measure the voltage on the focus coil.
2) Play back the test disc and adjust VR5 so that the tracking coil voltage is 500 to 600 mVp-p.

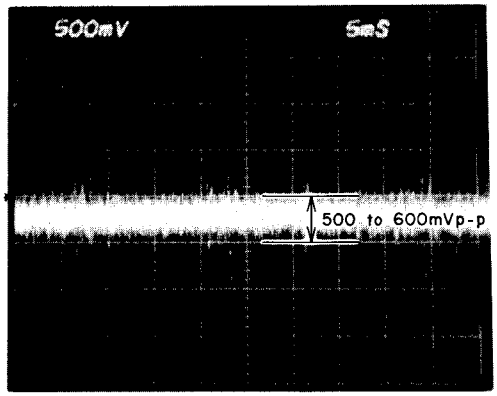


Fig. 7-12

7-2-6. TRACKING GAIN ADJUSTMENT

1) Connect the oscilloscope between P1-pin 3 terminal on the Main P.C. board and measure the voltage on the tracking coil.
2) Play back the test disc and adjust VR4 so that the tracking coil voltage is 1.8 to 2.2 Vp-p.

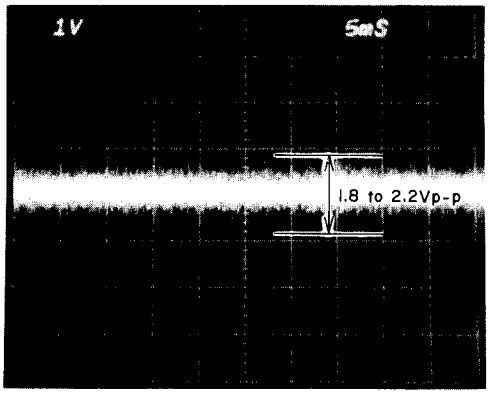


Fig. 7-13

REFERENCE:

If the sound jumps when the machine is lightly jolted, this means the tracking gain is small.

If a disc with a scratch of 600μ is played and the sound jumps, this means the tracking gain is large.

Philips No. 40079-2 Track No. 6, 01'05" up till Track No. 7, 00'02".